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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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MCDERMOTT, WILL & EMERY
600 13th Street, N.W.
Washington, DC 20005-3096

EXAMINER

ALANKO, ANITA KAREN

ART UNIT PAPER NUMBER

1765

DATE MAILED: 03/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/087,846

Applicant(s)

GAUZNER ET AL.

Examiner

Anita K Alanko

Art Unit

1765

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 7/18/02. 6) ☐ Other:

Drawings

The drawing corrections received on 1/7/04 are approved.

Claim Rejections - 35 USC § 112

Claims 10 and 15-17 and 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 10, line 3 and claim 15, line 9, the term "close" is a relative term that renders the metes and bounds of the claim unclear.

Claims 16-17 and 20 do not cure the indefiniteness of their base claim, and are therefore also rejected.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1, 3-6, 10, 12-17 are rejected under 35 U.S.C. 102(a) as being clearly anticipated by Davis (US 2002/0025408 A1).

Davis discloses a method comprising:

preheating a workpiece (first substrate) to a pre-selected elevated temperature prior to inserting said workpiece in a stamping/imprinting tool (mold) for performing thermal imprint

lithography (to form servo patterns [0072]), whereby the interval for thermal cycling of said stamping/imprinting tool between higher and lower temperature is eliminated or at least reduced, wherein the temperature of the tool is maintained substantially constant at a pre-selected elevated temperature lower than the pre-selected elevated temperature of the pre-heated workpiece (see e.g., abstract and paragraphs [0072]-[0078]).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chou (5,820,769) in view of Chou (5,772,905) and Davis (US 2002/0025408 A1).

Chou discloses a method comprising:

preheating a workpiece 72 to a pre-selected elevated temperature (col.4, lines 11-15) prior to inserting said workpiece in a stamping/imprinting tool 74 (col.4, lines 5-10) for performing thermal imprint lithography, whereby the interval for thermal cycling of said stamping/imprinting tool between higher and lower temperature is eliminated or at least reduced.

As to amended claim 1, Chou '769 does not disclose to heat the tool. Chou '905 teaches that it is known to heat the both the workpiece 20 and the tool 10 (col.4, lines 65-68) to 200 °C. It would have been obvious to one with ordinary skill in the art to heat the tool because Chou '905 teaches that this is a useful technique for thermal imprint lithography.

Chou '905 does not disclose the temperatures of the workpiece or tool during imprinting. Davis teaches that it is useful to maintain the tool at a constant temperature at a pre-selected elevated temperature lower than the pre-selected elevated temperature of the pre-heated workpiece (abstract, [0072]-[0078]). The advantage in doing so is to save time and reduce the embossing cycle time ([0076] and [0078]). Therefore, it would have been obvious to one with ordinary skill in the art to maintain the tool at a constant temperature at a pre-selected elevated temperature lower than the pre-selected elevated temperature of the pre-heated workpiece in the modified method of Chou because Davis teaches that this is useful in order to save time and reduce the embossing cycle time.

As to claims 3, 10, 12-18, the modified method of Chou teaches the relative temperatures as related to the glass transition temperature, but not the specific temperature of 120° or 200°. However, since Davis teaches to vary the temperature close to the glass transition temperature, it would have been obvious to one with ordinary skill in the art change the temperatures as cited in the method of Chou '769 because Chou '905 teaches that the temperature appears to reflect a result-effective variable which can be optimized and it is expected that since the same materials are used, that the same temperatures would be encompassed by the modified method of Chou. See MPEP 2144.05 IIB.

As to claim 4, Chou '769 discloses that the workpiece 10 is a flat, disk-shaped substrate 72 for a hard disk recording medium (col. 2, lines 60-65) coated with a layer of a thermoplastic material 70.

As to claim 5, Chou '769 does not disclose the material of the workpiece. However, Davis teaches that conventional materials for workpieces to be patterned with a servo pattern by

imprinting ([0072]) includes metal, glass and ceramic ([0060]). It would have been obvious to one with ordinary skill in the art to pattern a servo pattern in metal, glass or ceramic by thermal imprint in the method of Chou because Davis teaches that imprinting is a useful technique for patterning them.

As to claim 7, Chou '905 teaches that metal is a useful material for the tool (col.4, line 46). It would have been obvious to use nickel as the metal in the method of Chou '905 to form the tool in Chou '769 because nickel is a well known metal.

As to claims 8-9, 19, it would have been obvious to one with ordinary skill in the art to use a fluorinated polyether compound in the method of Chou '769 because they are well known release agents and Chou '905 teaches that the tool should have good release properties.

Claims 1, 3-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chou (5,820,769) in view of Chou (5,772,905), Davis (US 2002/0025408 A1) and Ishida et al (US 6,347,016 B1).

The discussion of modified Chou from above is repeated here.

As to claim 5, Chou '769 does not disclose the material of the workpiece. Ishida teaches that conventional materials for workpieces to be patterned with a servo pattern by imprinting (col.8, line 45; col.9, lines 22-24) includes glass and aluminum (col.9, lines 51-55). It would have been obvious to one with ordinary skill in the art to pattern a servo pattern in aluminum or glass by thermal imprint in the modified method of Chou because Ishida teaches that imprinting is a useful technique for patterning them.

Response to Amendment

The objection to the drawings is withdrawn. The 102(b) rejection over Chou '769 is withdrawn. The claims are now rejected over 35 USC 112, second paragraph, over newly cited Davis, over Chou'769 in combination with Davis and Chou '905, or over Chou'769 in combination with Davis, Chou '905 and Ishida.

Response to Arguments

Applicant's arguments, see 1/7/04, filed 1/7/04, with respect to the rejections of the claims under Chou '769 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new grounds of rejection is made over Davis and over Chou ('769, '905) in combination with Davis. Applicant's point is well taken that Chou '905 does not disclose maintaining the temperature of the tool at a constant temperature. However, newly cited Davis is now relied upon to teach this feature.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anita K Alanko whose telephone number is 571-272-1458. The examiner can normally be reached on Mon, Tues & Fri: 8:30 am-5 pm; Wed&Thurs: 10 am-2 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine Norton can be reached on 571-272-1465. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Anita K. Alanko

Anita K Alanko
Primary Examiner
Art Unit 1765